

Application No. : 10/728,185
Filed : December 3, 2003

IN THE CLAIMS

Please cancel Claims 8-17, 24, 25 and 28-29 without prejudice, amend Claims 1, 18, 23,
5 26, 27, and 30, and add new Claims 31-49 as follows:

1. (Currently Amended) A method for administering a serial bus, the bus facilitating communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between said node devices, wherein a first type of packet
10 comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, the method comprising:

if there is a packet of the second type to be sent, then concatenating the packet of the second type to a plurality of packets of the first type and sending the plurality of packets of the
15 first type followed by the concatenated packet of the second type; and

if there is no packet of the second type to be sent, then concatenating a bogus ack packet to the plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated bogus ack packet.

2. (Original) The method of claim 1, wherein concatenating the packet of the second type
20 is performed by link hardware.

3. (Original) The method of claim 1, wherein concatenation of the bogus ack packet is performed by link hardware.

4. (Original) The method of claim 1, wherein concatenation of the bogus ack packet is performed by PHY hardware.

5. (Original) The method of claim 4, wherein link hardware is unaware that the PHY
25 hardware performs concatenation.

6. (Original) The method of claim 1, further comprising inspecting a first quadlet of a packet to determine a packet type.

7. (Original) The method of claim 6, wherein the first quadlet contains a transaction code,
30 further comprising:

determining from the transaction code that the packet is a stream packet; and
determining that transmission is not occurring during an isochronous period.

8.-17. (Cancelled)

18. (Currently Amended) A method for administering a serial bus, the bus facilitating communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between said node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, the method comprising:

receiving a packet of the first type;

determining that there are no packets of the second type to be sent;

if fly-by concatenation is permitted then concatenating a bogus ack packet to the received packet and sending the received packet and the bogus ack packet; and

if fly-by concatenation is not permitted then sending the received packet, arbitrating for the bus, and sending a bogus ack packet.

19. (Original) The method of claim 18, wherein concatenating the bogus ack packet is performed by PHY hardware.

20. (Original) The method of claim 18, wherein arbitrating for control of the bus is performed by PHY hardware.

21. (Original) The method of claim 18, further comprising inspecting a first quadlet of a packet to determine a packet type.

22. (Original) The method of claim 21, wherein the first quadlet contains a transaction code, further comprising:

determining from the transaction code that the packet is a stream packet; and

determining that transmission is not occurring during an isochronous period.

23. (Currently Amended) A computer readable medium ~~program product~~, containing instructions which, when executed by a computer, administer a serial bus that facilitates communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between said node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, by performing the acts of:

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if there is a packet of the second type to be sent, then concatenating the packet of the second type to a plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated packet of the second type; and

if there is no packet of the second type to be sent, then concatenating a bogus ack packet to the plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated bogus ack packet.

24.-25. (Cancelled)

26. (Currently Amended) A computer readable medium ~~program product~~, containing instructions which, when executed by a computer, administer a serial bus that facilitates communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between said node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, by performing the acts of:

receiving a packet of the first type;

determining that there are no packets of the second type to be sent;

if fly-by concatenation is permitted then concatenating a bogus ack packet to the received packet and sending the received packet and the bogus ack packet; and

if fly-by concatenation is not permitted then sending the received packet, arbitrating for the bus, and sending a bogus ack packet.

27. (Currently Amended) A node device connected to a serial bus, the node device containing instructions which, when executed by a computer, administer a serial bus that facilitates communication between said node device and a plurality of node devices connected to the bus and communicating over the bus in the form of packetized communication between said node device and said plurality of node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, by performing the acts of:

if there is a packet of the second type to be sent, then concatenating the packet of the second type to a plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated packet of the second type; and

5 if there is no packet of the second type to be sent, then concatenating a bogus ack packet to the plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated bogus ack packet.

28.-29. (Cancelled)

30. (Currently Amended) A node device connected to a serial bus, the node device containing instructions which, when executed by a computer, administer a serial bus that
10 facilitates communication between said node device and a plurality of node devices connected to the bus and communicating over the bus in the form of packetized communication between said node device and said plurality of node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a
15 second type of packet comprises asynchronous packets, by performing the acts of:

receiving a packet of the first type;

determining that there are no packets of the second type to be sent;

if fly-by concatenation is permitted then concatenating a bogus ack packet to the received packet and sending the received packet and the bogus ack packet; and

20 if fly-by concatenation is not permitted then sending the received packet, arbitrating for the bus, and sending a bogus ack packet.

31. (New) A method for administering a data bus, the bus facilitating communication between node devices communicating over the bus using at least a first type and second type of asynchronous packet, the first type of packet not requiring that an acknowledgement packet be
25 sent in response to transmission of such first type of packet, the method comprising:

if a packet of the second type needs to be sent, concatenating the packet of the second type to a plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated packet of the second type; and

if no packet of the second type needs to be sent, concatenating a false acknowledgement
30 packet to the plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated false acknowledgement packet.

32. (New) The method of claim 31, wherein concatenating the packet of the second type is performed by link hardware.

33. (New) The method of claim 31, wherein concatenation of the false acknowledgement packet is performed by link hardware.

5 34. (New) The method of claim 31, wherein concatenation of the false acknowledgement packet is performed by PHY hardware.

35. (New) The method of claim 34, wherein link hardware is unaware that the PHY hardware performs concatenation.

10 36. (New) The method of claim 31, further comprising inspecting a first quadlet of a packet to determine a packet type.

37. (New) The method of claim 36, wherein the first quadlet contains a transaction code, further comprising:

determining from the transaction code that the packet is a stream packet; and
determining that transmission is not occurring during an isochronous period.

15 38. (New) A method for administering a data bus, the bus facilitating communication between node devices communicating over the bus using at least a first type of asynchronous packet and a second type of asynchronous packet, the first type of packet having no requirement that a response packet be sent in response to transmission thereof, the method comprising:

20 receiving a packet of the first type;
determining that there are no packets of the second type to be sent;
if concatenation is permitted, concatenating a false response packet to the received packet and sending the received packet and the false packet; and
if concatenation is not permitted, sending the received packet, arbitrating for the bus, and sending a false response packet.

25 39. (New) The method of claim 38, wherein concatenating the false response packet is performed by PHY hardware.

40. (New) The method of claim 38, wherein arbitrating for control of the bus is performed by PHY hardware.

30 41. (New) The method of claim 38, further comprising inspecting a first quadlet of a packet to determine a packet type.

42. (New) The method of claim 41, wherein the first quadlet contains a transaction code, further comprising:

determining from the transaction code that the packet is a stream packet; and
determining that transmission is not occurring during an isochronous period.

5 43. (New) A node device adapted to administer a data bus, the bus facilitating communication between said node device and another device communicating over the bus using at least a first type and second type of asynchronous packet, the first type of packet not requiring that an acknowledgement packet be sent in response to transmission of such first type of packet, the node device comprising first apparatus adapted to:

10 determine if a packet of the second type needs to be sent, and if so, concatenate the packet of the second type to a plurality of packets of the first type, and send the plurality of packets of the first type followed by the concatenated packet of the second type; and

15 if no packet of the second type needs to be sent, concatenate a false acknowledgement packet to the plurality of packets of the first type, and send the plurality of packets of the first type followed by the concatenated false acknowledgement packet.

44. (New) The node device of claim 43, further comprising link hardware adapted to concatenate the packet of the second type.

20 45. (New) The node device of claim 43, further comprising link hardware adapted to concatenate the false acknowledgement packet.

46. (New) The node device of claim 43, further comprising PHY hardware adapted to concatenate the false acknowledgement packet.

25 47. (New) The node device of claim 43, further comprising apparatus adapted to inspect a first quadlet of a packet to determine a packet type, the first quadlet containing a transaction code.

48. (New) The node device of claim 47, further comprising apparatus adapted to:
determine from the transaction code that the packet is a stream packet; and
determine that transmission is not occurring during an isochronous period.

30 49. (New) A node device for administering a data bus, the bus facilitating communication between said node device and another device communicating over the bus using at least a first

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type of asynchronous packet and a second type of asynchronous packet, the first type of packet having no requirement that a response packet be sent in response to transmission thereof, the node device comprising apparatus adapted to:

receive a packet of the first type;

5 determine that there are no packets of the second type to be sent;

if concatenation is permitted, concatenate a false response packet to the received packet, and send the received packet and the false packet; and

if concatenation is not permitted, send the received packet, arbitrate for the bus, and send a false response packet.

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